

LIV.

M E M O I R S

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L I T E R A T U R E.

MONDAY, March 19. 1711.

I.

AN EXTRACT of a Discourse concerning Artificial Vegetations, read by M. HOMBERT in the last Assembly of the Royal Academy of Sciences.

THE Operations of Chymistry afford many Productions somewhat like the Vegetation of Plants; which is the Reason why they are call'd *Metallick Vegetations, Trees of Diana, &c.*

I have reduced Artificial Vegetations into Three Classes, *viz.*

1. Those, that consist of a massive and pure Metal without any Mixture.
2. Those, that are compos'd of a dissolved Metal, the Dissolvent remaining with the Metal, and making part of the Shrub that is produced out of it.
3. Those, that have nothing Metallick in them, but only saline, earthy, and oily Particles.

The Productions arising from the Three following Operations will be so many Examples of the first Class.

Make an Amalgation of one or two Ounces of fine Gold or Silver, and ten times the same Quantity of Mercury, revived out of bruised Cinaber: Wash that Amalgation several times with clear River-Water, till the Amalgation leaves no Nastiness in the Water. Then dry up your Amalgation: Mix it in a Glass-Retort, distill'd by a Sand-heat with a very gentle Fire to be kept up one or two Days: The longer you can keep up the Fire, without wholly throwing out the Mercury, the more perfect will the Vegetation be. At last, encrease the Fire till all the Mercury comes out: Let the Fire go out: You will find your Mercury in the Recipient; and the Gold or Silver remaining in the Retort, will be soft and pliant, and of the finest Colour those Metals can have: It will appear that their Mass has shot out several Branches like small Shrubs of different Figures and Heights, which may be taken out of the Retort, separated from their Mass, made red hot in a Fire, and kept without being spoiled.

The following Operation affords a Second Example of this first sort of artificial Vegetations. Take one or two Ounces of fine Silver; melt it in a Crucible; and whilst it is melted, throw upon it at several times the

same Weight of common Brimstone: Stir and mix them well with an Iron Rod, and take them quickly from the Fire: Melt the Matter a second time; and then pound it very small: Put it into another Crucible, upon a gentle Coal Fire, or in a strong Digestion or Sand-heat, without melting the Matter. The Brimstone will by degrees evaporate out of the Mass in the Crucible, and carry along with it part of the Silver in the Shape of white, shining and soft Threads, sticking to the Mass of the Metal out of which they Spring. I have seen some Three Inches high, and two Lines broad, and as thick as a Card to play withal.

The Third Example is grounded upon the following Operation. Melt two Ounces of Silver Plate, and Six Ounces of Lead together; mix the whole in a Coppel of Ashes; make a proper Fire to purify that Silver in the Coppel: And as soon as you perceive that the Silver is grown fine, take the Coppel quickly from the Fire, and let it cool. About two or three Minutes after it is taken from the Fire, there will come out from the Surface of that Silver one or many Shoots of melted Silver of the bigness of a Straw, and 7 or 8 Lines high, that will grow hard as they come out of the Silver Mass that is in the Coppel. Those Shoots are generally hollow, and frequently assume the Shape of Coral-Branched. They stick to the Mass out of which they spring.

I must shew how one may know that Silver is grown fine in the Coppel, since the Success of the Operation depends upon it. When during the same Degree of Fire that Silver has been in a perfect Fusion, in order to be refined, its Surface thickens all of a sudden in the Coppel, and turns into a hard and shining Crust, sticking to the Body of the Coppel, whilst the inside of that Silver Mass is still melted; 'tis at that very Moment that the Coppel ought to be removed from the Fire, and set in a cold Place.

These Operations are sufficient to shew the Character of the artificial Vegetations of the first Class; I mean, of those, the Matter whereof consists of a massive and pure Metal, without any mixture. As for those of the Second Class, the Composition whereof consists of a dissolved Metal, wherein the Dissolvent remains mixed with the Metal, I have read in one of our Assemblies a Discourse, which was printed in 1692. That Discourse contains many Operations, whereby one may learn several ways of making artificial Vegetations. They may all serve to shew the Character of those that are comprehended under our Second Class; and therefore I shall say nothing of them here.

I have placed in the Third Class all the other Artificial Vegetations, which contain nothing in them that is Metallick; and I shall give Three Examples of them. Take

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Eight Ounces of Saltpeter, fixed with Coals as usually; let them be dissolved in a Cellar into *Oleum per deliquium*; let the Oil be filtrated, and pour upon it by Degrees some Oil of Vitriol till a perfect Saturation, or till the Ebullition be over; let the Moistness evaporate. There will remain a saline, pure, compact, and very white and acrimonious Mass: Pound it coarsely, and pour upon it half a pint of cold River Water in a stone Porringer: Leave it for some days upon a Table that lies open to the Air: part of the Water will evaporate; and the Salt being still moist will begin to vegetate in many places, shooting out some Tufts, each of which springs from the same Center, and is divided into several Branches that are sharp, stiff, brittle, and about 12 or 15 Lines long. They are generally formed along the Edge of the Porringer, and make a kind of a crown about it. They cease to grow when all the Water is evaporated out of the Porringer; but if you pour again some Water upon that Salt, it will vegetate anew.

I shall mention, as a Second Example of this Class, some Crystallizations or Shrubs, which I found naturally produced upon the Shore of the *Spanish* Sea, and which may easily be imitated by Art, being nothing else but a Stalk, full of Branches, of a Plant dried up and without Leaves, which has been frequently sprinkled with Sea-Water; and when the watery Humour was evaporated, the Salt remain'd and was crystallized upon it, covering the whole Plant at first very superficially; but being watered at several times, the Salt grows more and more upon it, and it looks like a Plant of Salt. I have seen a very fine one of this kind in the Cabinet of the late M. de Tournesfort: it was about a Foot high, and as white as Snow. I made some of the like Nature by using Salt Water. One must, in the first place, take off the Bark of the Branch, which supports that Crystallization, because the Bark, being generally brown, would darken the transparent Whiteness of the Salt, that surrounds the Branch and sticks round it.

The following Observation will be my Third Example. During a Storm attended with much Rain and Thunder, I fill'd a Glass-bottle, holding about Three Pints, with the Rain that fell from the top of an old House covered with Tiles, after it had lain about half an Hour in a Bucket under a Gutter. I put that Bottle, carelessly flopt with a piece of Paper, upon a Window lying to the South, where it remain'd about a quarter of a Year without being stirr'd, because I had forgot it. The Water did not appear Muddy, when I fill'd the Bottle; and yet a Sediment of a green Colour, about three or four Lines thick, sunk by Degrees to the bottom of the Bottle. 'Tis likely there happen'd a Fermentation in that Matter; for it appear'd to me very Spungy, and full of small Bubbles of Air, which in all probability had separated themselves from the Mud that made the Sediment; as such Aerian Separations are always observed in all Matters that Ferment.

Upon a very hot Day in July, about Two a Clock in the Afternoon, I went to the Place where that Bottle lay: I look'd upon it accidentally, and found no Mud at the bottom; but I perceived there was in it a kind of Vegetation of a very fine green Colour, part of which seem'd to stick to the bottom of the Bottle, and the rest was only suspended like Filaments in the Water, among which some were raised to the Surface of the Water, and others remain'd at different Distances from the Surface, swimming in the Water. Each Ramification and Filament was furnished with a Grain or little Ball, that look'd white in the Water, and as bright as Silver, and represented a kind of Fruit on the Top of the Plant. I perceived by stirring the Bottle that this Vegetation had no Consistence, and was only supported by the Water in the Bottle, and that it floated in the whole Mass of that Water, which was very clear and limpid.

The next day about Seven a Clock in the Morning, being desirous to shew that Vegetation to a Person, with whom I had discours'd about it, I found nothing in the Bottle but clear Water, and a green mud sticking to the bottom as before; which rais'd in me a Curiosity of looking frequently upon that Bottle, to be inform'd of a thing at which I was surpriz'd at first. About Ten a Clock in the Morning, when the Sun reach'd the Window where the Bottle lay, the Mud that was at the bottom, began to

swell; and as the Water grew hot, there arose from the Surface of that Mud a vast Number of Tumours, which rising up more and more, grew less insensibly, and produced many Filaments out of the very Substance of the Mud; so that in Two Hours time, all the Mud that cover'd the bottom of the Bottle was converted into Filaments, some of which stuck together, and seem'd to come out from one another, being like so many Branches, and others floated, being strait and turned aside by those which they had met in their way, each of them having at the upper end a white Pearl of different Sizes, as I had observed the Day before. They remained in that Situation all the time the Sun shone upon the Bottle; that is, till Four a Clock in the Afternoon. Immediately after, I saw the Filaments and Ramifications sink by degrees to the bottom of the Bottle, and at the same time the small white Balls, which I had seen at the end of the Branches, grew less and less, and at last the whole falling to the bottom made up again the same Quantity of Sediment or green Mud I had observed at first. The same thing happen'd the next day, and at the same Hours, and during the remaining part of the Summer; that is, upon hot Days, and when the Sun could reach the Bottle. The remaining Part of the Year, the Branches did not appear in the Water, and besides, the Mud or Sediment of the Bottle, which was Three or Four Lines thick in the Summer-Nights, grew so flat in the Winter that it had not the Thickness of one Line; and the small Bubbles of Air, with which that Mud was sensibly interspersed in the Summer, did wholly disappear in the Winter.

Having placed that Bottle at some distance from the Fire in the Winter, the Bubbles of Air appear'd again in the Sediment; and as the Water grew hot, the Sediment swelled, the Branches spread themselves through the whole Mass of the Water, as it happen'd in the Summer by the heat of the Sun; and when I removed the Bottle from the Fire, the Sediment fell to the bottom as the Water grew cold. I made this Experiment Three or Four times with good Success; but the last time having heated the Bottle too much, there appear'd a Froth upon the Water, which I had never seen before; and all the Filaments and Branches that fill'd the Water, sunk immediately to the bottom of the Bottle like Mud, which was never since converted into Branches as before.

It plainly appears that the Bubbles of Air, shut up in the green Sediment, occasion'd the rising of that Sediment in the shape of Filaments and Branches, which fill'd up the whole Capacity of the Bottle; and that the small white and shining Balls, sticking to the upper end of each Branch like so many Fruits, were nothing else but those Bubbles of Air partly engaged and shut up in the Texture of that Mud. Those Bubbles being considerably dilated by the Heat of the Sun or of the Fire, grew so light if compared with the same Quantity of Water, that the Water of the Bottle was able to raise them up, notwithstanding the weight of the Mud they stuck to; so that they carried it along with them in the shape of Branches which formed that Vegetation. And because the last time I put the Bottle near the Fire, I heated it too much, the Bubbles of Air being too much dilated, carried along with them the covers wherein they were shut up, and formed the Froth, which appear'd then upon the Water of the Bottle. And therefore the Mud did never rise since, and there has been no further Vegetation.

Whoever observes all the Circumstances I have mention'd, may repeat the same Experiment with rain-Water, whenever he pleases.

If the Famous *Palingenesia* was verified, it would afford another Example of the Third Class of Artificial Vegetations.

II.

RELATION exacte concernant les Caravanes des Corteges des Marchands d'Asie. Par M. Bugnon, Geographe Ordinaire de S. A. R. de Lorraine. A Nancy,

Nancy, chez R. Charlot & P. Deschamps, Imprimeurs Ordinaires de S. A. R. & se vendent chez Claude Bouchart & Francois Fastré, Marchands Libraires a Nancy. In 120. pagg. 124.

That is, *An Exact Relation concerning the Caravanes of the Merchants of Asia.* By M. Bugnon, Geographer to H. R. H. the Duke of Lorraine. Nancy, in 120. pagg. 124.

THE Caravanes of Merchants have been mention'd by several Authors; but none have given us a perfect Knowledge of what is practis'd among them. *Pietro della Valle*, and the *Chevalier de Verencourt*, says M. Bugnon, might have been more particular. M. le Fevre, M. *Journien de Rochefort*, and the Author of the History of *Kemiski*, did more enlarge upon this Subject; but their Accounts are still very imperfect. *Thevenot*, *Tavernier*, *Morison*, *Gautier* and *Schouten*, mention the Caravanes of those Pilgrims who visit the Tomb of *Mahomet*, and the Place where he was born; but it does not appear from their Relations, that the Caravanes of Merchants have penetrated into the Desarts of *Arabia*, nor consequently that they have made a Confederacy with those *Arabians* for the Security of Trade. This makes Part of M. Bugnon's Relation. He has insert'd in it what is to be found in other Authors, to which he has added his own Discoveries. His Book is written by way of Letter: One Half of it concerns the Caravanes of Merchants. He shews what they consist of; How many Sorts of them there are; What Use several Sorts of Animals are put to, and for how much they are bought; From whence those Animals come; How many Men are employed to drive them, and how much they get by it; The several Officers who take care of every thing, and their Salaries, &c.

This Part of M. Bugnon's Work contains some Plans and Geometrical Descriptions, whereby one may see how those Caravanes encamp, and how they defend themselves when attack'd by the *Arabians*. The Author, in the remaining Part of this Book, gives an Account of what concerns the Treaties of Alliance, which the Caravanes make with the *Arabians*. He takes Occasion from thence to discover the Genius of that Nation, and to inform us upon what Grounds they suppose they may lawfully plunder all the Nations of the World. In the next place, M. Bugnon shews what a prodigious Quantity of Provisions a Caravane carries along with it; into how many Parts a Caravane is divided, and how Merchandizes are exchanged, &c. Such is the Plan of M. Bugnon's Work. The Caravanes he speaks of are great Convoys of Armed Men, Merchants, Trading People, and several Sorts of Animals to carry the Provisions. Those Caravanes are armed for the Safety of every thing that belongs to them, and to defend themselves against Robbers, especially against the *Arabians*, who think they have a Right to plunder all other Nations. To form a Caravane, 'tis necessary to have in writing the Permission of a Sovereign Prince, approved at least by Two other Neighbouring Sovereigns; which is called a Commission, as in the War. A Trading Man may establish a Company to form a Caravane. He, in whose Name it is rais'd, is look'd upon as the Head of it, unless he puts another Man in his room; and if the Caravane belongs to several Merchants, they chuse a Director, who is called *Caruanbanchy*: Afterwards they chuse several Officers for the Management of the Caravane, and to determine the Differences that might arise during the Voyage. There are five Sorts of Caravanes. The first is call'd *Heavy Caravane*. It consists of Elephants, Dromedaries, Camels and Horses. It is also call'd a *Numerous and Invincible Caravane*, because the *Arabians* can hardly overcome it. The Second goes by the Name of *Light Caravane*. It is composed of Dromedaries, Camels and Horses, and some few Elephants, which serve only to carry Victuals from Town to Town. The Third is call'd *Ordinary Caravane*; in

which there are Dromedaries, Camels, and Horses. They call the Fourth a *Caravane of Horses*, because it consists only of those Animals, which go twice as fast as others. The Fifth, call'd a *Sea-Caravane*, is only a Fleet of Merchant-Men, consisting of a certain Number of Ships laden with Merchandizes, and a Convoy of some Armed Ships. The Proportion that is observ'd as to the Number of Animals design'd for a Caravane, is this: If there are Five Hundred Elephants, they use a Thousand Dromedaries, and Two Thousand Camels at least. The Retinue consists of Four Thousand Men, all mounted, besides the Officers of the Caravane, the Camel-Drivers, and other Servants, and the Passengers, who do not a little contribute to make the Caravane stronger.

There are Two Men appointed for each Elephant; Five, for Three Dromedaries, and Seven, for Twelve Camels. As for the Passengers, their Number is not fix'd: They are not oblig'd to take up Arms for the Defence of the Caravane; but if they refuse to do it upon an Occasion, they can expect no longer to have a Share in the Provisions of the Caravane: For tho' those Provisions be never so prodigious, since there are always Seven times more than a Caravane is able to consume during the Voyage, they are never distributed, even for Money, but to those who are in the Pay of the Caravane, or who carry Arms to defend it. Among the Animals of which it consists, there are some Elephants only design'd for Fighting; and others, to mount the Officers and Drivers, who fight also upon an Occasion: There are several Dromedaries of Burden, with their Officers, several Camels loaded with Provisions, and Horses that serve to mount the Men, and sometimes to carry Part of the Provisions. All those Animals are bought in the East.

A good Elephant costs 757 Crowns, even at *Siam*, where Elephants are cheaper, and where the dearest cost but 10000 Livres. The Author does not speak here of those that are worth a great deal more, by reason of their natural Whiteness, and design'd for *Bengale* and *Siam*. The *Caruanbanchis* don't buy those Elephants, but leave 'em to the Devotion of those Men, who make them the Object of their Idolatry. Dromedaries are to be found in the Mountains of *Galconde*, and *Raolconde*, tributary to the Great *Mogul*: They are higher and stronger, and live longer than Camels; but they cost at least 300 Crowns each. Good Camels cost 58 Crowns a piece: They are very plentiful in *Persia*, and in the Empire of the Great *Mogul*; but the best come from *Arabia Felix*, or from the Kingdom of *Adel*, upon the Coast of *Ajan*, on the Confines of the Red Sea. The Equipage of an Elephant costs 66 French Crowns; that of a Dromedary 32 Crowns, and that of a Camel 18. The Keeping of an Elephant amounts to Three Crowns and a half every Day upon a Journey, and to Two Crowns every Day all the Year round; that of a Dromedary to 5 *Abasses* upon a Journey, that is, to 14 Pence, but upon a Stay it amounts only to half the Money. Dromedaries consume not only a great deal of Corn and Barley, but also a great deal of Salt and Saltpeter; because the Biskets, which they eat in the Desert, ought to be very much salted, to make them drink large Draughts, whereby those Animals are enabled to bear the Heat and the Fatigue. The Urine of Dromedaries is carefully preserved, and put to several Uses: Some say it is the only Dissolvent of Gold.

The *Caruan-Serray*, or *Caruan-Serrais*, are publick Inns, situated in the Inhabited Parts of *Turkey* and *Persia*, to shelter the Caravanes. They are built by the Grand Signior and the *Bashas*. There are some *Caruan-Serrais* endowed, where nothing is to be paid: None but the Mother or Sisters of the Grand Signior are allowed to build them in *Turkey*. The *Visiers* and the *Bashas* have the same Privilege, when they have been three times engaged in a Battel with the Christians. There are some *Caruan-Serrais*, that afford nothing but a bare Lodging; and others, where nothing can be had without paying for it. The Magistrates of the Towns that are not far from those Inns, take great Care to fill their Granaries as soon as they are empty. There is an Inspector, who takes a view of them at the Departure of each Caravane; and 'tis he who settles the Price of a Night's Lodging. When a Caravane comes to a *Caruan-Serray*, it is secure from the Insults of the Enemy, and the Injuries of Weather, and guarded

guarded without doors by a Hundred Mastiffs, that are let loose every Night, after a publick Signal of Retreat. It is in those *Caravan-Serrais* that Merchandizes are exchanged: Whereupon the Author mentions one of his Friends, who got a great deal by an Exchange upon such an Occasion. He had a Watch worth Thirty *Louis d'Or*: An *Indian* desired to barter with him for Two rough Diamonds: The Exchange was made; and he who received the Diamonds, got one of them wrought at *Ormus*, which was valued at 18000 *Livres*. He exchanged that Diamond in his way to *Ispahan* for Five Boxes of *Silk Arasse*, a sort of Silk that is never died. He sent them to *Thibet*, where he exchanged them for Three Elephants, for each of which the Director of the Caravane, who wanted them very much, gave him 8000 *Livres*. The rough Diamond, that was not cut, was exchanged at *Trabizonda* for Two Bales of *Silesia-Cloth*, which in their turn were exchanged at *Tauris* for some Stuffs of *Persia*, by which he got above 40000 *Livres*: So that his Watch, which was only worth Thirty *Louis d'Or*, brought him near 30000 *Crowns*. Whereupon it ought to be observed that he paid nothing for the Carriage; it being a Privilege granted to all the Officers of a Caravane, and sometimes to others. The Caravanes are always attended with a great many Passengers, who hope to get something by those Exchanges; and many of them undertake the same Journey several times, without being the better for it. The Advantage arising from

such an Expectation, is, that it enables them to bear more patiently the Inconveniences of a Caravane. "Those Inconveniences are, a horrid Stink, a Confusion of Nations, Manners and Languages, and the Necessity of Living upon such Things as one can get: A Man must be sometimes his own Cook, and eat with the greatest Wretches of the Caravane: He must be pester'd with the Smoak of Tobacco, lie upon hard Mats, &c. and be always in danger of losing his Purse, by reason of the many Cunning Thieves that are among that Multitude. Nay, the very Cash of the Caravane would be robbed, notwithstanding all the Guards that surround it, were it not for some Faithful *Arabian Mathematicians*, who are well paid to attend the Caravanes: Their Business is to trace a Camp, to direct the Officers in the Attacks and Defences, and to give a Model of Locks with such Wards and Springs as will prevent the opening of the Cash. And though that Cash does not shut like the Coffers of the *Doge of Venice*, that is so much talk'd of, because when they open it, Four Pistols go off, which none can avoid but those who know how to open it; yet it is as safe as that Coffer, being made from a Model like that, which was invented by *M. Papin*, Professor of the Mathematicks at *Marburg*. That Model is of such an admirable Invention, that a Lock having been made from it, and put into the Hands of very able Locksmiths, they never could open it, tho' the Box it was put to had been open'd and shut in their Presence.

J E N A.

DR. *Wedelius* has publish'd at last the first Part of his *Praxis Clinica*.

Georgii Wolffgangi Wedelii Epitomes Praxeos Clinicae Sectio prima de Morbis Capitis. Jena. 1710. in 4to.

This first Part, concerning the Distempers of the Head, is divided into XIII. Chapters, wherein the Author treats of Convulsions, Melancholy, Apoplexy, Paralysis, the Head-ach, Giddiness, Epilepsy, the Incubus, Drowsiness, Cataplexy, Catarrhs, Hoarseness, &c.

AMSTERDAM.

THE Heads of the *Roman Emperors* were engraved at *Rome* from the Medals of *Christina*, Queen of *Sweden*, in the Life-time of that Princess, and in *Holland* some Years ago from the Copy of *Rome*. This Second Edition came out with many historical Explications written in the *Dutch Language*. Some Booksellers of this City have thought fit to publish a Third Edition; and to render it more useful to the Publick, the Explications have been printed in *Latin*.

Historia Augusta Imperatorum Romanorum à C. Julio Cesare usque ad Iosephum Imperatorem Augustissimum, ex Joannis Petri Lotichii Tetraſtickis Mnemonicis, & Joannis Jacobi Hoffmanni Tetraſtickis, & ejusdem in hac enarrationibus Historicis. Adduntur singulorum Imperatorum Effigies aere sculpto expressæ ex Nummis Christinae Suecorum Reginae. Additamenta necessaria & integra omiſſorum supplementa adjecit Henricus Christianus Henninius. Amsteladami. 1710. in Fol. pagg. 290.

There is under the Head of each Emperor, 1. An Inscription containing the Name of the Prince, the Place

where he was born, the Length of his Reign, the Names of the Popes Contemporary with him, and the Year of his Death. 2. A Quatrain written by *Lotichius*, a *German* Physician of *Frankfort*, wherein he mentions some of the principal Things, whereby each Emperor may be distinguished from others. 3. Another Quatrain of *Hoffman*, containing likewise some particular Circumstances frequently different from those that are mention'd in the first. 4. An Historical Explication by the same *Hoffman*, which generally fills up the bottom of the Page, and part of the back side. 5. This Explication is attended with several Observations of the same kind, printed in Two Columns. Those Observations, written by *M. Henninius*, are a Supplement to what has been omitted in the Historical Explication of *Hoffman*. Those two Writers are very careful to quote their Authors.

The Heads of the *Roman Emperors* are to be found in this Work from *Julius Caesar* to *Momyllus*, with whom the *Western Empire* ended. The Succession of the Emperors is continued with those of *Constantinople*, to the Number of twenty one, from *Zeno* to *Constantine VI.* and *Irene*. Next to them comes *Charlemagne*, who restored the Empire in the *West*, attended with all his Successors, as far as the Emperor *Joseph* now reigning. Which makes in all a Series of CLXV. Emperors.

There is at the end of this Book a Poem of 787 Verses, composed by *M. Hamelow*. It contains a compendious History of all the Emperors mention'd in this Volume.

Henrici Hamelow J. C. Imperatores Romani à Julio Cesare usque ad Sacratissimum Imperatorem qui nunc rerum potitur, carmine perpetuo descripti. Editio secunda priori emendatio. Pagg. 29.

LONDON: Printed by J. Roberts: And Sold by A. Baldwin, near the Oxford-Arms in Warwick-Lane. (Price 2 d.)